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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/613,963

07/03/2003

Sartaj Kumar Sahni

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EXAMINER

CHAN, SAI MING

ART UNIT

PAPER NUMBER

2609

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/19/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/613,963

Applicant(s)

SAHNI ET AL.

Examiner

Sai-Ming Chan

Art Unit

2609

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4/19/2004, 3/4/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged.

Information Disclosure Statement

The information disclosure statements (IDS) submitted on April 19, 2004 and March 4, 2004 have been considered by the Examiner and made of record in the application file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 19-24 are rejected under 35 U.S.C. 102(e) as being anticipated by **Yazdani et al. (U.S. Patent #6859455)**.

Consider **claim 19**, Yazdani et al., clearly show and disclose a computer program product recorded on computer readable medium for routing packets comprising: a computer readable medium for receiving packets (fig.1 (router)), a computer readable medium for identifying each rule matching the value of the packet (fig. 1 (router (P53, P56); a computer readable medium for matching, inserting, or deleting (fig. 10; column 12, lines 52-53) rules in a dynamic, nonintersecting highest priority rule table (NHRT), and a computer readable medium for performing steps of manipulating the dynamic table (fig.10 (74,78,80) and, said steps comprising:

(a) applying a top level balanced binary search tree (PTST) with at least one lower level range search tree (RST) (fig.11b; 100 (range 01-04); column 27, lines 12-21 (i.e. This reference can handle range, prefix and longest matching prefix)) to a nonintersecting highest priority rule table comprising at least one nonintersecting range (fig.11b; column 12, lines 54-57) and corresponding priority (fig.30 (priority)), wherein the PTST comprises at most $2n$ nodes (fig.4 (P70 is the root node. It branches out with numerous nodes.)), with each of the PTST nodes associated with a point value (fig.4 (P70 has the value of (01*, 7)));

(b) applying a range allocation rule (column 6, lines 51-62) to allocate to each PTST node a subset of the nonintersecting ranges and corresponding priorities; and

(c) applying an RST to organize the subset (column 6, lines 63-67, column 7, lines 1-4) of nonintersecting ranges and corresponding priorities allocated to each PTST node.

Consider **claim 20**, and **as applied to claim 19 above**, Yazdani et al. clearly show and disclose the computer program product (fig.10; column 12,

Art Unit: 2609

lines 52-53), wherein the PTST is a balanced binary search tree (fig. 4; column 12, lines 37-38).

Consider **claim 21**, Yazdani et al., clearly show and disclose a computer program product recorded on computer readable medium for routing packets (fig. 1 (router)) comprising: a computer readable medium for receiving packets, a computer readable medium for identifying each rule matching the value of the packet (fig. 1 (router (P53, P56))); a computer readable medium for matching, inserting, or deleting (fig. 10; column 12, lines 52-53) prefixes in a dynamic, highest priority prefix table (HPPT), and a computer readable medium for performing steps of manipulating the dynamic table (fig. 10 (74, 78, 80)), said steps comprising:

(a) applying a top level balanced binary search tree (PTST) with at least one array linear list (ALL) (fig. 5 (each node has a prefix and priority)); column 27, lines 12-21 (i.e. This reference can handle range, prefix and longest matching prefix)); column 12, lines 40-42) to a highest priority prefix table comprising at least one pair, wherein the pair comprises a prefix and corresponding priority (fig. 30 (priority)), wherein the PTST comprises at most 2^n nodes (fig. 4 (P70 is the root node. It branches out with numerous nodes.)), with each of the PTST nodes associated with a point value (fig. 4 (P70 has the value of (01*, 7)));

(b) applying a range allocation rule (column 6, lines 51-62) to each PTST node to allocate to each PTST node a subset of the pair of prefix and corresponding priority; and

(c) applying an ALL to organize the prefixes and corresponding priorities (column 6, lines 63-67, column 7, lines 1-4) allocated to each PTST node, wherein the ALL comprises the pair of prefix length and corresponding prefix priority.

Consider **claim 22**, and **as applied to claim 21 above**, Yazdani et al., as modified by Turner et al., clearly show and disclose the computer program product, wherein the PTST is a balanced binary search tree (fig.4; column 12, lines 37-38).

Consider **claim 23**, Yazdani et al., clearly show and disclose a computer program product recorded on computer readable medium for routing packets comprising: a computer readable medium for receiving packets, a computer readable medium for identifying each rule matching the value of the packet; a computer readable medium for matching, inserting, or deleting prefixes in a dynamic, longest-matching prefix table (LMPT), and a computer readable medium for performing steps of manipulating the dynamic table, said steps comprising:

(a) applying a top level balanced binary search tree (PTST) with at least one W-bit vector (bit(z)) (fig. 4, between P70 (01*, 7) and ((01001100*, 4) and (10110011*, 8))) (column 27, lines 12-21 (i.e. This reference can handle range, prefix and longest matching prefix)) to a longest-matching prefix-table comprising at least one prefix, wherein the PTST comprises at most 2^n nodes, with each of the PTST nodes associated with a point value;

(b) applying a range allocation rule (column 6, lines 51-62) to allocate to each PTST node a subset of the prefixes; and

(c) applying the bit(z) to organize the prefixes (column 6, lines 63-67, column 7, lines 1-4) allocated to each PTST node, wherein an ith position of bit(z) is set to 1 if the prefix with length i is allocated to a PTST node.

Consider **claim 24**, and **as applied to claim above**, Yazdani et al., as modified by Turner et al., clearly show and disclose the computer program product, wherein the PTST is a balanced binary search tree (fig.4; column 12, lines 37-38).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating

obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-18 are rejected under 35 U.S.C. 102(e) as being anticipated by **Yazdani et al. (U.S. Patent #6859455), in view of Turner et al. (U.S. Patent # 6018524).**

Consider claim 1, Yazdani et al. clearly disclose and show a method for improving in dynamic routing tables (column 5, lines 56-58) processes for matching a highest-priority range (fig. 30 (priority); column 30, lines 46-50) with a destination address comprising:

(a) applying a top level balanced binary search tree (PTST) (fig.4; column 12, lines 37-38) with at least one lower level range search tree (RST) (fig.11b; 100 (range 01-04)) to a nonintersecting highest priority rule table (fig.30) comprising at least one nonintersecting range (fig.11b; column 12, lines 54-57) and corresponding priority (fig.30 (priority)), wherein the PTST comprises at most $2n$ nodes (fig.4 (P70 is the root node. It branches out with numerous nodes.)), with each of the PTST nodes associated with a point value (fig.4 (P70 has the

value of (01*, 7));

(b) applying a range allocation rule (column 6, lines 51-62) to allocate to each PTST node a subset of the nonintersecting ranges and corresponding priorities; and

(c) applying an RST to organize the subset (column 6, lines 63-67 , column 7, lines 1-4) of nonintersecting ranges and corresponding priorities allocated to each PTST node.

However, Yazdani et al. do not specially disclose the deleteion of rules and the times for search, insert and delete.

In the same field of endeavor, Turner et al. clearly show the matching of an address in $O(\log.\sup.2 n)$ time (column 8, lines 16-18) and inserting or deleting rules in $O(\log n)$ time (column 8, lines 16-18)

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a dynamic router table , as taught by Yazdani, and the deleteion of data in the binary trie, as taught by Turner so that the binary trie operation can be carried out very efficiently.

Consider **claim 2**, and **as applied to claim 1 above**, Yazdani et al., as modified by Turner et al., clearly show and disclose the method, wherein the PTST is a balanced binary search tree (fig.4; column 12, lines 37-38).

Consider **claim 3**, and **as applied to claim 1 above**, Yazdani et al. as modified by Turner et al., clearly show and disclose the method, for matching a highest-priority range with a destination address, further comprising the steps of:

(a) conducting a binary search of the PTST based on the destination address, wherein the binary search is conducted along a search path from a root of the PTST to a leaf of the PTST(column 34, lines 39-60); and

(b) examining the RST(s) of a PTST node (column 34, lines 61-67;column 35, lines 1-33) along the search path for a best matching range and corresponding priority.

Consider **claim 4**, and **as applied to claim 1 above**, Yazdani et al. as modified by Turner et al., clearly show and disclose the method, for inserting a new rule, further comprising the steps of:

(a) setting an initial node to a root node (fig. 16 (130=root node);) of the PTST in preparation of inserting a new range r;

(b) conducting a binary search (column 17, lines 60-64) on the PTST for a node z such that the range r contains the point value of z (column 18, lines 54-59);

(c) if said node z exists (column 22, lines 26-34 (line 32, else case)), inserting range r into the RST(z) (column 18, lines 54-59); and

(d) if said node z does not exist (column 22, lines 26-34 (line 28, full case)), creating a new PTST node (column 22, lines 26-34 (line 29), inserting the new PTST node into the PTST, and inserting range r into the RST of the new PTST node (column 22, lines 26-34).

Consider **claim 5**, and **as applied to claim 4 above**, Yazdani et al. as modified by Turner et al., clearly show and disclose the method, wherein when the new PTST node is inserted into the PTST, the PTST is rebalanced (column 18, lines 63-66).

Art Unit: 2609

Consider **claim 6**, and **as applied to claim 1 above**, Yazdani et al. as modified by Turner et al., clearly show and disclose the described method. However Yazdani et al., as modified by Turner et al. fails to disclose the deleting of a rule.

In the same field of endeavor, Turner et al. clearly show the method for deleting a rule, which comprises the steps of:

- (a) conducting a binary search of the PTST for a node z such that the range r contains $\text{point}(z)$ (column 17, lines 60-64);
- (b) if node z exists, deleting range r from the RST of the node z (column 18, lines 15-26);
- (c) if the RST of node z becomes empty as a result of deleting range r and node z is a degree 0/1 node (fig. 7 (P7)); deleting node z from the PTST and rebalancing the PTST (column 18, lines 25-34); and
- (d) when a size constraint has been violated, deleting a degree 0/1 PTST node having an empty RST and rebalancing the PTST (column 18, lines 31-34).

Consider **claim 7**, Yazdani et al. clearly disclose and show a method for improving in dynamic routing tables processes of matching a highest-priority prefix with a destination address and inserting or deleting new rules in $O(W)$ time comprising:

- (a) applying a top level balanced binary search tree (PTST) (fig.4; column 12, lines 37-38) with at least one array linear list (ALL) (fig. 5 (each node has a prefix and priority); column 12, lines 40-42) to a highest priority prefix table (fig.30) comprising at least one pair (fig.11b (100) (range 01-04)), wherein the pair comprises a prefix and corresponding priority (fig. 30 (234)), wherein the

Art Unit: 2609

PTST comprises at most $2n$ nodes (fig.4 (P70 is the root node. It branches out with numerous nodes.), with each of the PTST nodes associated with a point value (fig.4 (P70 has the value of $(01^*, 7)$);

(b) applying a range allocation rule (column 6, lines 51-62) to each PTST node to allocate to each PTST node a subset of the pairs; and

(c) applying an ALL to organize the pairs (column 6, lines 63-67, column 7, lines 1-4) allocated to each PTST node, wherein the ALL comprises a pair of prefix and corresponding priority.

However, Yazdani et al. do not specially disclose the times for insert and delete.

In the same field of endeavor, Turner et al. clearly show the time for inserting or deleting rules is $O(\log \text{.sub.2 } W)$ (column 5, lines 32-33).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a dynamic router table, as taught by Yazdani, and the deletion of data in the binary trie, as taught by Turner so that binary trie operation can be carried out very efficiently.

Consider **claim 8**, and **as applied to claim 7 above**, Yazdani et al., as modified by Turner et al., clearly show and disclose the method, wherein the PTST is a balanced binary search tree (fig.4; column 12, lines 37-38).

Consider **claim 9**, and **as applied to claim 7 above**, Yazdani et al., as modified by Turner et al., clearly show and disclose the method, for matching a highest-priority prefix with a given destination address, further comprising the

steps of:

(a) conducting a binary search of the PTST based on the destination address, wherein the binary search is conducted along a search path from a root of the PTST to a leaf of the PTST(column 34, lines 39-60); and

(b) examining the ALL(s) of the PTST nodes (column 34, lines 61-67;column 35, lines 1-33) along the binary search path for a best matching prefix and corresponding priority.

Consider **claim 10**, and **as applied to claim 7 above**, Yazdani et al., as modified by Turner et al., clearly show and disclose the method, for inserting a new rule, further comprising the steps of:

(a) setting an initial node to a root node (fig. 16 (130=root node);) of the PTST in preparation of inserting a new prefix p;

(b) conducting a binary search (column 17, lines 60-64) on the PTST for a node z such that the prefix p contains the point value of z (column 18, lines 54-59) ;

(c) if said node z exists (column 22, lines 26-34 (line 32, else)) ; inserting prefix p into ALL(z) (column 18, lines 54-59); and

(d) if said node z does not exist (column 22, lines 26-34 (line 28, full)), creating a new PTST node (column 22, lines 26-34 (line 29), inserting the new PTST node into the PTST, and inserting prefix p into an ALL of the new PTST node (column 22, lines 26-34).

Consider **claim 11**, and **as applied to claim 10 above**, Yazdani et al., as modified by Turner et al., clearly show and disclose the method, wherein when the new PTST node is inserted into the PTST, the PTST is rebalanced (column 18, lines 63-66).

Consider **claim 12**, and **as applied to claim 7 above**, Yazdani et al., as modified by Turner et al., clearly show and disclose the method according to claim 7, for deleting a rule, further comprising the steps of:

- (a) conducting a binary search of the PTST for a node z such that the prefix p contains point(z) (column 17, lines 60-64);
- (b) if such node z exists, deleting prefix p from the ALL of the node z (column 18, lines 15-26);
- (c) if the ALL becomes empty as a result of deleting prefix p and node z is a degree 0/1 node (fig. 7 (P7)), deleting node z from the PTST and rebalancing the PTST (column 18, lines 25-34), and
- (d) when a size constraint has been violated, deleting a degree 0/1 PTST node with an empty ALL and rebalancing the PTST (column 18, lines 31-34).

Consider claim 13, Yazdani et al. clearly disclose and show a method for improving in dynamic routing tables (column 5, lines 56-58) processes for longest-prefix, comprising:

- (a) applying a top level balanced binary search tree (PTST) (fig.4; column 12, lines 37-38) with at least one W-bit vector (bit(z)) (fig. 4, between P70 (01*, 7) and ((01001100*, 4) and (10110011*, 8))) to a longest-matching prefix-table (fig.30) comprising at least one prefix, wherein the PTST comprises at most 2^n nodes, with each of the PTST nodes associated with a point value;
- (b) applying a range allocation rule (column 6, lines 51-62) to allocate to each PTST node a subset of prefixes; and
- (c) applying the bit(z) to organize the prefixes (column 6, lines 63-67 , column 7, lines 1-4) allocated to each PTST node, wherein an ith position of

bit(z) is set to 1 if the prefix with length i is allocated to a PTST node.

However, Yazdani et al. do not specially disclose the times for search, insert and delete.

In the same field of endeavor, Turner et al. clearly show the matching of an address in $O(\log.\sup.2 n)$ time (column 8, lines 16-18) and inserting or deleting rules in $O(\log.\sub.2 W)$ time (column 5, lines 32-33)

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a dynamic router table, as taught by Yazdani, and the deleteion of data in the binary trie, as taught by Turner so that a binary trie can operate efficiently.

Consider **claim 14**, and **as applied to claim 13 above**, Yazdani et al., as modified by Turner et al., clearly show and disclose the method according to claim 13, wherein the PTST is a balanced binary search tree (fig.4; column 12, lines 37-38).

Consider **claim 15**, and **as applied to claim 13 above**, Yazdani et al., as modified by Turner et al., clearly show and disclose the method according to claim 13, for longest-prefix matching, further comprising the steps of:

(a) conducting a binary search of the PTST based on a given destination address, wherein the binary search is conducted along a search path from a root of the PTST to a leaf of the PTST (column 34, lines 39-60); and

(b) examining the bit(z) vectors of PTST nodes (column 34, lines 61-67; column 35, lines 1-33) along the search path to find a prefix with the longest

matching length.

Consider **claim 16**, and **as applied to claim 13 above**, Yazdani et al., as modified by Turner et al., clearly show and disclose the method according to claim 13, for inserting a new rule, further comprising the steps of:

- (a) setting an initial node to a root node (fig. 16 (130=root node)) of the PTST in preparation of inserting a new prefix p;
- (b) conducting a binary search (column 20, lines) on the PTST nodes for the bit(z) such that the prefix p contains the point value of z;
- (c) if there exists a PTST node having the bit(z) (column 22, lines 26-34 (line 32, else)) such that the prefix p contains the point value of z, inserting prefix p into the bit(z); and
- (d) if there does not exist a PTST node having the bit(z) such that the prefix p contains the point value of z (column 22, lines 26-34 (line 28, full)), creating a new PTST node, inserting the new PTST node into the PTST, and inserting prefix p into the bit(z) of the newly created PTST node (column 22, lines 26-34).

Consider **claim 17**, and **as applied to claim 16 above**, Yazdani et al., as modified by Turner et al., clearly show and disclose the method according to claim 16, wherein when the new PTST node is inserted into the PTST, the PTST is rebalanced.

Consider **claim 18**, and **as applied to claim 13 above**, Yazdani et al., as modified by Turner et al., clearly show and disclose the method according to claim 13, for deleting a rule, further comprising the steps of:

- (a) conducting a binary search of the PTST for a node z such that the

Art Unit: 2609

prefix p contains point(z) (column 17, lines 60-64);

(b) if node z is present, deleting prefix p from the bit(z) (column 18, lines 15-26);

(c) if the bit(z) vector becomes empty as a result of deleting prefix p and node z is a degree 0/1 node (fig. 7 (P7)), deleting node z from the PTST and rebalancing the PTST (column 18, lines 25-34); and

(d) when a size constraint has been violated, deleting a degree 0/1 PTST node having an empty bit(z) and rebalancing the PTST (column 18, lines 31-34).

Conclusion

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed**

to:

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P.O. Box 1450
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Hand-delivered responses should be brought to

Customer Service Window

Art Unit: 2609

Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Sai-Ming Chan whose telephone number is (571) 270-1769. The Examiner can normally be reached on Monday-Thursday from 6:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rafael Pérez-Gutiérrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

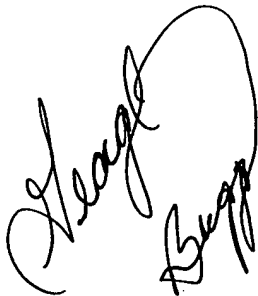
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

Sai-Ming Chan

Art Unit: 2609

S.C./ sc

March 7, 2007

A handwritten signature in black ink, appearing to read "George B. Bupp". The signature is written in a cursive style with a large loop at the top and a distinct "B" in the middle.